

FORM PTO-1390 (Modified)  
(REV 11-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

210689US3PCT

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

09/868916

INTERNATIONAL APPLICATION NO.

PCT/JP00/05965

INTERNATIONAL FILING DATE

01 September 2000

PRIORITY DATE CLAIMED

01 September 1999

TITLE OF INVENTION

RESIN-COATED SHEET AND METHOD FOR PRODUCING THE SAME

APPLICANT(S) FOR DO/EO/US

WATANABE Kazue

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.
4. ☐ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
  - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☒ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
  - a. ☒ is attached hereto.
  - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
  - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☒ A copy of the International Search Report (PCT/ISA/210).

Items 13 to 20 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☐ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
21. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
22. ☐ Certificate of Mailing by Express Mail
23. ☒ Other items or information:

Notice for Consideration of Documents Cited in International Search Report/Notice of Priority/Drawings (6 Sheets)  
Petition to Revive Under 37 C.F.R. 1.137(b)/Letter Regarding Small Entity Status

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR 1.53) <b>09/863916</b>		INTERNATIONAL APPLICATION NO. <b>PCT/JP00/05965</b>		ATTORNEY'S DOCKET NUMBER <b>210689US3PCT</b>	
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24. The following fees are submitted: <b>BASIC NATIONAL FEE ( 37 CFR 1.492 (a) (1) - (5) ) :</b> <input type="checkbox"/> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... <b>\$1000.00</b> <input checked="" type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... <b>\$860.00</b> <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... <b>\$710.00</b> <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... <b>\$690.00</b> <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) ..... <b>\$100.00</b> <p style="text-align: center;"><b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b></p>				<b>CALCULATIONS PTO USE ONLY</b>  <div style="border: 1px solid black; height: 100px; width: 100%;"></div>	
Surcharge of <b>\$130.00</b> for furnishing the oath or declaration later than <input checked="" type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).				<b>\$860.00</b>  <b>\$130.00</b>	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	FEE	TOTAL
Total claims	13 - 20 =	0	x \$18.00	<b>\$0.00</b>	
Independent claims	2 - 3 =	0	x \$80.00	<b>\$0.00</b>	
Multiple Dependent Claims (check if applicable). <input type="checkbox"/>				<b>\$0.00</b>	
<b>TOTAL OF ABOVE CALCULATIONS =</b>					<b>\$990.00</b>
<input checked="" type="checkbox"/> Applicant claims small entity status. (See 37 CFR 1.27). The fees indicated above are reduced by 1/2.					<b>\$495.00</b>
<b>SUBTOTAL =</b>					<b>\$495.00</b>
Processing fee of <b>\$130.00</b> for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).					<b>\$0.00</b>
<b>TOTAL NATIONAL FEE =</b>					<b>\$495.00</b>
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable). <input type="checkbox"/>					<b>\$0.00</b>
<b>TOTAL FEES ENCLOSED =</b>					<b>\$1,100.00</b>
Petition to Revive under 37 C.F.R. 1.137 (b) \$605.00				Amount to be: refunded \$ charged \$	

a. ☒ A check in the amount of **\$1,100.00** to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \_\_\_\_\_ to cover the above fees. A duplicate copy of this sheet is enclosed.


c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **15-0030** A duplicate copy of this sheet is enclosed.

d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

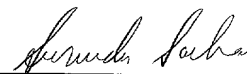
**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:



**22850**

**Surinder Sachar**  
**Registration No. 34,423**

  
 SIGNATURE  
**C. Irvin McClelland**  
 NAME  
**21,124**  
 REGISTRATION NUMBER  
**July 10 2001**  
 DATE

6/PR TS

09/868916

JC18 Rec'd PCT/PTO 11 JUL 2001

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# SPECIFICATION

## RESIN-COATED SHEET AND METHOD FOR PRODUCING THE SAME

### TECHNICAL FIELD

5 The present invention relates to a resin-coated sheet and a method for producing the same.

### TECHNICAL BACKGROUND

10 So far there have been known a seal or the like having on its reverse surface a tacky layer strippable for any number of uses whose productions have needed large-scaled facilities or special purpose machines. Further, several methods have been known about how to coat cloth and paper surfaces with resin film, but any method has so far needed  
15 a large-scaled facility or its own producing machine. Still further, when applique or the like is to be sewn on clothes and others, there has heretofore been employed a method wherein the applique is first temporarily secured onto the other member of the clothes or the like with an  
20 adhesive such as quilting binder and then sewn up with a thread. This method still has such problem as allows the suture to become rather troublesome because of the binder's adhesion to a needle.

25 Therefore, an object of the present invention is to provide a resin-coated sheet which is easy-to-use and is, if needed, able to be striped any number of times for reuse. Another object of the present invention is to present a method for readily producing said resin-coated sheet.

## DISCLOSURE OF THE INVENTION

A resin-coated sheet according to the present invention has a fibrous sheet base permeable to moisture and a resinous coating film formed on at least one surface thereof. Said resinous coating film is obtained by drying a film of vinyl-acetate-resin emulsion adhesive containing water as a vaporizing component on said sheet base, and said resin-film surface is formed to become smooth by covering said adhesive with a moisture-impermeable release sheet until its drying and peeling off the release sheet after its drying.

In the resin-coated sheet having the foregoing construction, since formed by drying the film of vinyl-acetate-resin emulsion adhesive containing water as a vaporizing component, the resinous coating film has no tackiness when dried, thus resulting in either readiness in its storage, carrying and others or its better function as a protective coating film toward the sheet base. Furthermore, since the vinyl-acetate-resin emulsion adhesive containing water as a vaporizing component can permeate in-between fibers of the moisture-permeable sheet base while the adhesive film is drying, the dried resinous coating film will not readily peel off from the sheet base. Further, because the resinous coating film can be allowed to restore an appropriate tackiness when the dried resinous coating film is added with moisture in such an amount as to soften the surface thereof, the resin-coated sheet according to the present invention can be used as a sticker for many objects. Still further, since the resinous

coating film is formed by drying the coating film surface of the adhesive provided on at least one surface of the sheet base, as covered with a moisture-impermeable release sheet, not only can said release sheet readily be strip  
 5 off but also said resinous coating film can obtain its smooth surface with little irregularity. Therefore, when the tackiness is allowed to restore by giving appropriate moisture on the resinous coating film, its surface will become a tacky surface such as can readily stick to objects  
 10 with a uniform strength to obtain a better application property. In addition, the resinous coating film, when subjected to impregnation with enough hot water, can become easier to strip off from its sheet base, and if the present invention is to be applied to, for example, sewing products,  
 15 not only can the resinous coating film be used for temporary fixing (positioning) before sewing, but also the material touch of the sheet base can effectively be allowed to restore by removing the resinous coating film after sewing.

Further, according to the present invention, it is  
 20 provided a method for producing a resin-coated sheet comprising the steps of: forming on at least one side of a moisture-permeable fibrous sheet base a coating film of a vinyl-acetate-resin emulsion adhesive which contains water as a vaporizing component; drying a surface of said  
 25 adhesive coating film as covered with a moisture-impermeable release sheet; and peeling off said release sheet after dry-up of said adhesive.

The method having the foregoing steps makes it possible to readily obtain the resin-coated sheet having

the resinous coating film on at least one side of the sheet base. Further, since at least one side of the sheet base is provided with the film of vinyl-acetate-resin emulsion adhesive containing water as a vaporizing component whose surface is in turn dried up as covered with the moisture-impermeable release sheet, not only can the surface of the adhesive be protected from dust-like substance placing thereon, but also the resinous coating film having its smooth surface can readily be formed.

When a resinous coating film is formed on either side of said sheet base in accordance with the foregoing construction, the coating film of said adhesive is preferably formed on the other side of said sheet base after the coating film of said adhesive has dried up that formed on one side of said sheet base. In accordance with such sequence of steps, because the adhesive coating film formed on one side of the sheet base is dry when the adhesive coating film formed on the other side of the sheet base is dried up, the former film serves as a water-vaporizing path for a moist adhesive to promote drying thereof, thus causing the adhesive of either side of the sheet base to effectively dried up. In addition, since the adhesive coating film formed on one side of the sheet serves as a water-vaporizing path of a moist adhesive when the adhesive coating film formed on the other side of the sheet base is dried up, the adhesive on either side of the sheet base is allowed to tightly bind each other through the sheet-base fibers.

The coating film of said adhesive is further

preferably provided on at least one side of said sheet as applied onto said release sheet. In accordance with such construction, the coating film can readily and conveniently be formed on the sheet base. In addition, because such release sheet is to consist of an moisture-impermeable material, the release sheet can be produced and stored as applied with the adhesive without drying thereof, so resulting in an effective production of the resin-coated sheets.

The coating film of said adhesive is still further preferably dried up at temperatures below 160°C. In accordance with such construction, because the resinous coating film consisting of the dried-up adhesive can readily be stripped off from the sheet base in (hot) water, it will become easier to separately dispose the sheet base and the resinous coating film and to recycle the former.

The aforementioned sheet base is yet still further preferably cut together with the coating film of said adhesive into a given outline or shape after the latter has been dried up. In accordance with such construction, not only can one sheet base effectively be made into a plurality of resin-coated sheets having the given outline or shape, but also can increase the binding power between the sheet base and the resinous coating film, thus causing the sheet-base fibers to effectively keep from their fraying.

For the foregoing resin-coated sheet or the method for producing the same, the said sheet base is preferably cloth or paper. In accordance with such construction, the

surface of cloth or paper as a sheet base can, if needed, readily be provided with characters, symbols, patterns, coloration or the like and some existing cloth, paper or the like already provided with characters, symbols, patterns, coloration or the like can still be reused, and so there may be cheaply presented such resin-coated sheets as are rich in ornaments or include any information.

The aforementioned resinous coating film is further preferably roughly transparent. In accordance with such construction, a color and quality of material of the sheet base or characters, symbols, patterns or the like can be expressed outward through the resinous coating film, so that the ornamentation or information of such sheet base can be utilized to a better advantage.

In addition, said adhesive does preferably contain some colorant. In accordance with such construction, the colored resinous coating film can be obtained, and so the surface of the sheet base can readily be color-coated with an optional color.

The aforementioned vinyl-acetate-resin emulsion adhesive does still further preferably contain 40-42 weight % of vinyl acetate polymer and 58-60 weight % of water. In accordance with such construction, not only can the coating film with a uniform width readily be formed, but also said adhesive can effectively permeate in-between the sheet-base fibers, thus resulting in a higher binding power between the sheet base and said adhesive. Furthermore, the resinous coating film as formed by drying up the adhesive will come to have enough tackiness when



some moisture is added up on a surface thereof. There can therefore result a resin-coated sheet having a high-quality resinous coating film.

Yet still further preferably, said adhesive itself also contains some colorant. In accordance with such construction, because a colored adhesive film can be obtained, the sheet-base surface can readily be color-coated with desired colors.

#### BRIEF EXPLANATION OF THE DRAWINGS

Fig. 1 is a view showing a structure of a resin-coated sheet according to a first embodiment of the present invention and a method for producing the same.

Fig. 2 is a view showing a structure of a resin-coated sheet according to a second embodiment of the present invention and a method for producing the same.

Fig. 3 is a view showing a structure of a resin-coated sheet according to a third embodiment of the present invention and a method for producing the same.

Fig. 4 is a view showing how to stick a resin-coated sheet.

Fig. 5 is a view showing a method for producing a resin-coated sheet according to a fourth embodiment of the present invention.

Fig. 6 is a view showing a method for producing a resin-coated sheet according to a fifth embodiment of the present invention.

#### BEST MODE FOR CARRYING OUT THE INVENTION

Embodiments of the present invention are explained hereinafter in conjunction with drawings.

Fig. 1 shows a structure of a resin-coated sheet according to the first embodiment of the present invention and a method for producing the same. Referring to Fig. 1, a resin-coated sheet in this embodiment has a moisture-permeable fibrous sheet base 2 and a resinous coating film formed merely on a reverse side of said sheet base 4 (see Fig. 1(d) and (e)). In order to prepare the resin-coated sheet 1 having such construction, a vinyl-acetate-resin emulsion adhesive 4' containing water as a vaporizing component is applied as a film onto a release sheet 3 such as, for example, cellophane sheet, celluloid or the like, which is moisture-impermeable and has its smooth surface, and then the sheet base 2 is placed thereon (see Fig. 1(a) and (b)). Accordingly, a coating film of the adhesive 4' is to be formed on the reverse side of the sheet base 2, through which process the adhesive 4' is preferably smoothed out uniformly into a thinner film by applying a roller from the reverse side of the release sheet 3. Next, a surface of the adhesive 4' is allowed to dry up as covered with the release sheet 3, thus causing it to become the resinous coating film 4 having its smooth and roughly transparent surface. Finally, when the adhesive 4' has sufficiently dried up, the release sheet 3 is cut out along an outline of the sheet base 2 (see Fig. 1(c) ) and peeled up therefrom to completely obtain the resin-coated sheet 1 provided with the resinous coating film 4 on its reverse side (Fig. 1(d)).

The vinyl-acetate-resin emulsion adhesive 4' preferably contains 40-42 weight % of vinyl acetate polymer and 58-60 weight % of water. The adhesive 4' may additionally contain solvent, stabilizer and/or preservative. In addition, the adhesive 4' is preferably to be dried up at temperatures below 160°C, more preferably at from room temperature to 100°C.

For the resin-coated sheet 1 of the foregoing construction, since formed by drying the adhesive 4' mainly consisting of vinyl acetate resin and water, the resinous coating film 4 has no tackiness under drying conditions, and so it is easy to store and carry as well as effectively serving as a protective film toward the sheet base 2. At the same time, the adhesive 4' mainly consisting of vinyl acetate resin and water will permeate in-between the fibrous portion of the sheet base 2 during drying process to provide a stronger binding, so that the dried resinous coating film 4 will not readily stripped off from the sheet base 2. Further, because moisture is added onto the dried resinous coating film 4 in such an amount as to soften its surface which is then allowed to restore an appropriate tackiness, it will become possible for the resin-coated sheet 1 to be used for a sort of sticker for a wide variety of objects. At the same time, since the resinous coating film 4 is formed by drying the surface of the adhesive 4' applied onto one side of the sheet base 2 as covered with the moisture-impermeable release sheet 3, said sheet can readily be peeled off when the resinous coating film 4 has dried up. In addition, using the release sheet 3 having

its smooth surface will enable the resin-coated sheet 4 to have a smooth surface with little irregularity.

Accordingly, when added up with an appropriate amount of water to restore its original tackiness, the surface of the resinous coating film 4 will become an adhesive face easy to uniformly stick onto objects so proving a better application property. Still further, the resinous coating film 4 is allowed to readily dissociate from the sheet base 2 by soaking into enough amount of hot water, and so if the present invention is to be applied to, for example, sewing products such as applique, not only can the resinous coating film 4 be used for temporary fixing (positioning) before sewing, but also the material touch of the sheet base 2 can effectively be allowed to restore by removing the resinous coating film 4 after sewing.

As another aspect of the present invention, in accordance with the foregoing method for producing the resin-coated sheet, there can readily be obtained the resin-coated sheet 1 having the resinous coating film 4 on the reverse side of the sheet base 2. Additionally, after applying as a film the adhesive 4' mainly consisting of vinyl acetate resin and water onto the reverse side of the sheet base 2, the surface of said adhesive is dried up as covered with the moisture-impermeable release sheet 3, and so the adhesive 4' can be protected from contamination by dusts or the like for its surface. Furthermore, using the smooth-surface release sheet 3 enables to readily form the resinous coating film 4 having its smooth surface.

In the foregoing embodiments, the fibrous sheet base 2 is preferably made of cloth or paper. In accordance with such construction, the surface of cloth or paper as a sheet base can, if needed, readily be provided with characters, symbols, patterns, coloration or the like and some existing cloth, paper or the like already provided with characters, symbols, patterns, coloration or the like can be used, and so there can be cheaply presented the resin-coated sheet 1 rich in ornaments or include any information. And the resinous coating film 4 is further preferably formed as roughly transparent. In accordance with such construction, a color and quality of material of the sheet base 2 or characters, symbols, patterns or the like can be expressed outward through the resinous coating film 4, so that the ornamentation or information of the sheet base 2 can be utilized to a better advantage.

On the other hand, the adhesive 4' may contain a desired color (not shown). According to such construction, the colored resinous coating film 4 can be obtained and so the surface of the sheet base 2 can readily be color-coated with an optional color.

Fig. 2 shows the second embodiment according to the present invention. In Fig. 2, the similar elemental components have the same reference characters to those in the first embodiment.

Referring to Fig. 2, the resin-coated sheet 1 in the second embodiment has the moisture-permeable fibrous sheet base 2 and the resinous coating film 4 formed merely on a front side thereof (see Fig. 2(d) and (e)). In order to

prepare a resin-coated sheet 1 of such construction, a vinyl-acetate-resin emulsion adhesive containing water as a vaporizing component 4' is applied as a film onto the release sheet 3 such as , for example, cellophane sheet, celluloid or the like, which is moisture-impermeable and has its smooth surface, and then the front side of the sheet base 2 is placed thereon (see Fig. 2(a) and (b)).

Accordingly, a coating film of the adhesive 4' is to be formed on the front side of the sheet base 2, through which process the adhesive 4' is preferably smoothed out uniformly into a thinner film by applying a roller from the reverse side of the release sheet 3. Next, a surface of the adhesive 4' is allowed to dry up as covered with the release sheet 3, thus causing it to become a roughly transparent resinous coating film 4 having a smooth surface. Finally, when the adhesive 4' has sufficiently dried up, the release sheet 3 is cut out along an outline of the sheet base 2 (see Fig. 2(c)) and peeled up therefrom to completely obtain the resin-coated sheet 1 provided with the resinous coating film 4 on its front side (Fig. 2(d)).

Fig. 3 shows the third embodiment according to the present invention. In Fig. 3, the similar elemental components have the similar reference characters to those in the first and second embodiments.

Referring to Fig. 3, the resin-coated sheet 1 in the third embodiment has the moisture-permeable fibrous sheet base 2 and the resinous coating films 4 and 6 formed respectively on the reverse and front sides thereof (see Fig. 3(f)). In order to prepare a resin-coated sheet 1 of

such construction, a vinyl-acetate-resin emulsion adhesive containing water as a vaporizing component 4' is applied as a film onto the release sheet 3 such as, for example, cellophane sheet, celluloid or the like, which is moisture-impermeable and has its smooth surface, and then the reverse side of the sheet base 2 is placed thereon (see Fig. 3(a)). Accordingly, a coating film of the adhesive 4' is to be formed on the surface of the sheet base 2, through which process the adhesive 4' is preferably smoothed out uniformly into a thinner film by applying a roller from the reverse side of the release sheet 3. Next, a surface of the adhesive 4' is allowed to dry up as covered with the release sheet 3, thus causing it to become a roughly transparent resinous coating film 4 having a smooth surface. Finally, when the adhesive 4' has sufficiently dried up, the release sheet 3 is cut out along an outline of the sheet base 2 (see Fig. 3(b)) and peeled up therefrom (see Fig. 3(c)).

Next, an adhesive 6' mainly consisting of vinyl acetate resin and water is applied as a film onto a release sheet 5 such as, for example, cellophane sheet, celluloid or the like, which is moisture-impermeable and has its smooth surface, and then the front side of the sheet base 2 is placed thereon (see Fig. 3(d)). Accordingly, a coating film of an adhesive 6' is to be formed on the front side of the sheet base 2, through which process the adhesive 6' is preferably smoothed out uniformly into a thinner film by applying a roller from the reverse side of the release sheet 5. Finally, the surface of the adhesive 6' is dried

up as covered with the release sheet 5, and then the adhesive 6' changes into the roughly transparent resinous coating film 6 having a smooth surface. After the adhesive 6' drying, the release sheet 5 is cut out along the outline of the sheet base 2 (see Fig. 3(e) ) and peeled off therefrom, thus obtaining the complete resin-coated sheet 1 with either side coated with the resinous coating films 4 and 6 (Fig. 3(d)).

In addition, the first to third embodiments employ the sheet base 2 which has been in advance cut into a desired outline. Alternatively, the sheet base 2 may be cut into any desired outline together with the release sheets 3 and 5 after dry-up of the adhesives 4' and 6'; Particularly, when the sheet base 2 is clothe, the thread fraying from the sheet base 2 around the edge can be protected by cutting into any desired outline together with the release sheets 3 and 5 after dry-up of the adhesives 4' and 6'.

Fig. 4 shows an example of how to stick the resin-coated sheet 1 according to the present invention. This example employs the resin-coated sheet 1 set forth in the first embodiment, but may also employ the resin-coated sheet as set forth in the third embodiment.

Referring to Fig. 4, a surface of an object 7 such as, for example, a glass cup was applied as a film with an adhesive 8' mainly consisting of vinyl acetate resin and water, and then allowed to have dried or semi-dried. Next, the resinous coating film 4 of the resin-coated sheet 1 is stuck onto the surface of the object 7. If the adhesive 8' is dry, some moisture is added onto the adhesive 8'



surface on the object 7 or the surface of the resinous coating film 4 on the resin-coated sheet 1 to soften said adhesive 8' which is then stuck onto the resin-coated sheet 1.

5 In accordance with the sticking method of the foregoing construction, since the adhesive 8' coating film is in advance applied onto the surface of the object 7 and then dried up, the resin-coated sheet can be stuck onto the object 7 onto which the aforementioned resin-coated  
10 sheet 1 will not stick directly. If the object is, for example, a wood which usually allows the directly stuck to become difficult to peel off, applying this how-to-stick would enable you to stick onto such type of objects without difficulty of peeling-off.

15 For the foregoing how-to-stick, a moisture content of the adhesive 8' to be applied onto the surface of the object 7 is preferably allowed to be more than that of the adhesive 4' for use in forming the resinous coating film of the resin-coated sheet 1.

20 In addition, when the sheet or the like, pasted up onto objects' surfaces with an adhesive mainly consisting of vinyl acetate resin and water, are to be stripped off from such objects, such adhesive water solution as are prepared by water-dilution of the same type of said adhesive  
25 is preferably applied onto such sheets. The binding power of the adhesive is thus allowed to fast decrease so that such sheets will become possible to readily be peeled off. Such kind of how-to-peel off is similarly advantageous in tearing off, for example, a chewing gum sticking onto floors,

walls, clothes or the like.

Fig. 5 shows a method for producing the resin-coated sheet in the fourth embodiment according to the present invention. Referring to Fig. 5, a resin-coated sheet 1 in this embodiment has a moisture-permeable fibrous sheet base 2 and a resinous coating film formed merely on the reverse side of said sheet base 4 (see Fig. 5(f), (g), and (h)).

In order to prepare the resin-coated sheet 1 having such construction, a vinyl-acetate-resin emulsion adhesive containing water as a vaporizing component 4' is applied as a film onto a release sheet 3 such as, for example, cellophane sheet, celluloid or the like (see Fig. 5(b)), which is moisture-impermeable and has its smooth surface, and then the reverse side of the sheet base 2 is placed thereon (see Fig. 5(a) and (c)). Accordingly, a coating film of the adhesive 4' is to be formed on the reverse side of the sheet base 2, through which process the adhesive 4' is preferably smoothed out uniformly into a thinner film by applying a roller from the reverse side of the release sheet 3. Next, a surface of the adhesive 4' is allowed to dry up as covered with the release sheet 3, and the dried adhesive 4 will become roughly transparent and a resinous coating film with its smooth surface (see Fig. 5(d)). In addition, the adhesive 4' may be covered upon with the release sheet 3 after having been applied onto one side of the sheet base 2.

Next, while the surface of the dried-up adhesive, that is, the resinous coating film 4 is carrying the release

sheet 3, the sheet base 2 is cut out along the outline of a pattern 2a (see Fig. 5(e)), and then the resin-coated sheet 1 is completely obtained as provided with a film of the resinous coating film 4 on its reverse side by peeling off the release sheet 3 (see Fig. 5 (f) and (g)). In addition, the sheet base 2 may be cut out along the outline of the pattern 2a after the release sheet 3 has been peeled off from the surface of the resinous coating film 4.

As shown in Fig. 5(a), once a plurality of patterns 2a and 2b has been formed on the sheet base 2, one role of the sheet base 2 permits a plurality of the resin-coated sheet 1 to be cut off (see Fig. 5 (g) and (h)).

In accordance with the aforementioned method for producing the resin-coated sheet, a film of the vinyl-acetate-resin emulsion adhesive 4' mainly consisting of vinyl acetate resin and water is provided on one side of the sheet base 2, and said adhesive 4' is dried up to form the resinous coating film 4. Accordingly, the resulting resinous coating film dried-up has no tackiness, which will make it possible either to store and carry it or to serve as an effective surface-protective film toward the sheet base 2. At the same time, since during drying process the adhesive 4' mainly consisting of vinyl acetate and water permeates in-between the fibrous portion of the moisture-permeable sheet base 2, there will occur a stronger binding power so that the dried-up resin coating resin 4 will seldom strip off from the sheet base 2.

Further, because the resinous coating film 4 can be allowed to restore an appropriate tackiness at the surface

thereof when the dried resinous coating film is added with moisture in such an amount as to soften the surface thereof, the resin-coated sheet 1 may be used as a sticker for many objects. At the same time, since the surface of the adhesive 4' provided on one side of the sheet base 2 is dried up as covered with the moisture-impermeable release sheet 3, said adhesive 4' can be protected from dust-like substance placing thereon until it has been perfectly dried. Additionally, not only can the release sheet 3 readily be peeled off from the dried-up adhesive film, that is, the resinous coating film 4, but also the resinous coating film 4 will have its surface with little irregularity. Accordingly, when added up with an appropriate amount of water to restore its original tackiness, the surface of the resinous coating film 4 will become an adhesive surface easy to uniformly stick onto objects so proving a better application property.

Still further, the resinous coating film 4 is allowed to readily dissociate from the sheet base 2 by soaking into enough amount of hot water, and so if the present invention is to be applied to, for example, sewing products such as applique, not only can the resinous coating film 4 be used for temporary fixing (positioning) before sewing, but also the material touch of the sheet base 2 can effectively be allowed to restore by removing the resinous coating film 4 after sewing.

In the foregoing embodiments, the fibrous sheet base 2 is preferably made of cloth or paper. In accordance with such construction, the surface of cloth or paper as a sheet

base can, if needed, readily be provided with characters, symbols, patterns, coloration or the like and some existing cloth, paper or the like already provided with letters, characters, patterns or coloration can be used, and so there  
 5 can be cheaply presented the resin-coated sheet 1 rich in ornaments or include any information. And the resinous coating film 4 is further preferably formed as roughly transparent. In accordance with such construction, a color and quality of material of the sheet base 2 or letters, characters, patterns or the like provided on the sheet base  
 10 2 can be expressed outward through the resinous coating film 4, so that the ornamentation or information of the sheet base 2 can be utilized to a better advantage.

On the other hand, the adhesive 4' may contain a desired color (not shown). In accordance with such  
 15 construction, the colored resinous coating film 4 can be obtained and so the surface of the sheet base 2 can readily be color-coated with an optional color.

Fig. 6 shows the fifth embodiment according to the  
 20 present invention. In Fig. 6, the similar elemental components have the same reference characters to those in the foregoing embodiments.

Referring to Fig. 6, the resin-coated sheet 1 in the fifth embodiment has the moisture-permeable fibrous sheet  
 25 base 2 and the resinous coating films 4 and 6 formed respectively on the reverse and surface sides thereof (see Fig. 6(h) ).

In order to prepare a resin-coated sheet 1 of such construction, a vinyl-acetate-resin emulsion adhesive

containing water as a vaporizing component 4' is applied as a film onto the release sheet 3 such as, for example, cellophane sheet, celluloid and or the like (see Fig. 6(b)), which is moisture-impermeable and has its smooth surface, and then the reverse side of the sheet base 2 is placed thereon (see Fig. 6(c)). Accordingly, a coating film of the adhesive 4' is to be formed on the reverse side of the sheet base 2, through which process the adhesive 4' is preferably smoothed out uniformly into a thinner film by applying a roller from the reverse side of the release sheet 3. In addition, the surface of this adhesive 4' may be covered with the release sheet 3 after having been applied onto the sheet base 2. And when a surface of the adhesive 4' is allowed to dry up as covered with the release sheet 3, there can be obtained a roughly transparent and dried adhesive coating film, that is, the resinous coating film 4 having its smooth surface. Once the adhesive 4' has dried up, the release sheet 3 is to be peeled off (see Fig. 6(e)).

Alternatively, an adhesive 6' mainly consisting of vinyl acetate resin and water is applied as a film onto a release sheet 5 such as, for example, cellophane sheet, celluloid or the like, which is moisture-impermeable and has its smooth surface, and then the front side of the sheet base 2 is placed thereon (see Fig. 6(e)). Accordingly, a coating film of an adhesive 6' is to be formed on the front side of the sheet base 2, through which process the adhesive 6' is preferably smoothed out uniformly into a thinner film by applying a roller from the reverse side of the release sheet 5. Additionally, the surface of this adhesive 6' may

be covered with the release sheet 5 after having been applied onto the front side. Finally, once the surface of the adhesive 6' has been dried up as covered with the release sheet 5, the adhesive 6' changes into a dried adhesive coating film which is roughly transparent and has its smooth surface, that is, the resinous coating film 6. After the adhesive 6' has dried up, the release sheet 5 is stripped off (see Fig. 6(g)). Subsequently, the sheet base 2 is cut out along the outlines 2a and 2b and others (see Fig. 6(h)), thus resulting in the resin-coated sheets 1 and 1 with their both sides coated, respectively, with the resinous coating films 4 and 6 (see Fig. 6(i) and (j)). Additionally, when the release sheet 5 is something film-like soft and flexible, the sheet base 2 may be cut out as added up on a surface of the dried adhesive 6 with the release sheet 5 which may be peeled off afterwards.

The resin-coated sheet 1 produced in accordance with the foregoing method has the dried adhesive, that is, the resinous coating films 4 and 6 on either side of the sheet base 2 which can be protected with such resinous coating films. Further, when some moisture is added onto a surface of the resinous coating film 4 as the reverse side of the sheet base 2, the surface will have an appropriate tackiness, thus becoming capable of repeatedly sticking to a wide variety of objects.

#### INDUSTRIAL APPLICABILITY

As is clearly described hereinbefore, the present invention may present an easy-to-use resin-coated sheet

which can be, if needed, reused any number of times by peeling it off as well as a method for producing without any difficulty such category of resin-coated sheets.



What is claimed is:

1. A resin-coated sheet comprising a moisture-permeable fibrous sheet base and a resinous coating film formed at least one side of said sheet base, said resinous coating film being obtained by drying a coating film of a vinyl-acetate-resin emulsion adhesive containing water as a vaporizing component on said sheet base, and a surface of said resinous coating film being formed without irregularity by covering the film of said adhesive with a moisture-impermeable release sheet throughout a drying process thereof and by peeling off said release sheet after drying.

2. The resin-coated sheet according to claim 1, wherein said sheet base is cloth or paper.

3. The resin-coated sheet according to claim 1, wherein said resinous coating film is roughly transparent.

4. The resin-coated sheet according to claim 1, wherein said adhesive consists of 40-42 weight % of vinyl acetate polymer and 58-60 weight % of water.

5. The resin-coated sheet according to claim 4, wherein said adhesive itself also contains a colorant.

6. A method for producing a resin-coated sheet comprising the steps of: forming on at least one side of a moisture-permeable fibrous sheet base a coating film of a vinyl-acetate-resin emulsion adhesive which contains water as a vaporizing component; drying a surface of said adhesive coating film as covered with a moisture-impermeable release sheet; and peeling off said release sheet after dry-up of said adhesive.

7. The method for producing a resin-coated sheet according to claim 6, wherein said adhesive coating film is formed on the other side of said sheet base after said adhesive coating film formed on one side of said sheet base has been dried up.

8. The method for producing a resin-coated sheet according to claim 6, wherein said adhesive is provided at least one side of said sheet base as applied onto said release sheet.

9. The method for producing a resin-coated sheet according to claim 6, wherein said adhesive coating film is dried at temperatures below 160°C.

10. The method for producing a resin-coated sheet according to claim 6, wherein said sheet base is cut out into a given outline or shape together with said adhesive coating film after said adhesive coating film has been dried up.

11. The method for producing a resin-coated sheet according to claim 6, wherein said sheet base is cloth or paper.

12. The method for producing a resin-coated sheet according to claim 6, wherein said adhesive contains 40-42 weight % of vinyl acetate polymer and 58-60 weight % of water.

13. The method for producing a resin-coated sheet according to claim 12, wherein said adhesive additionally contains a colorant.

FIG. 1

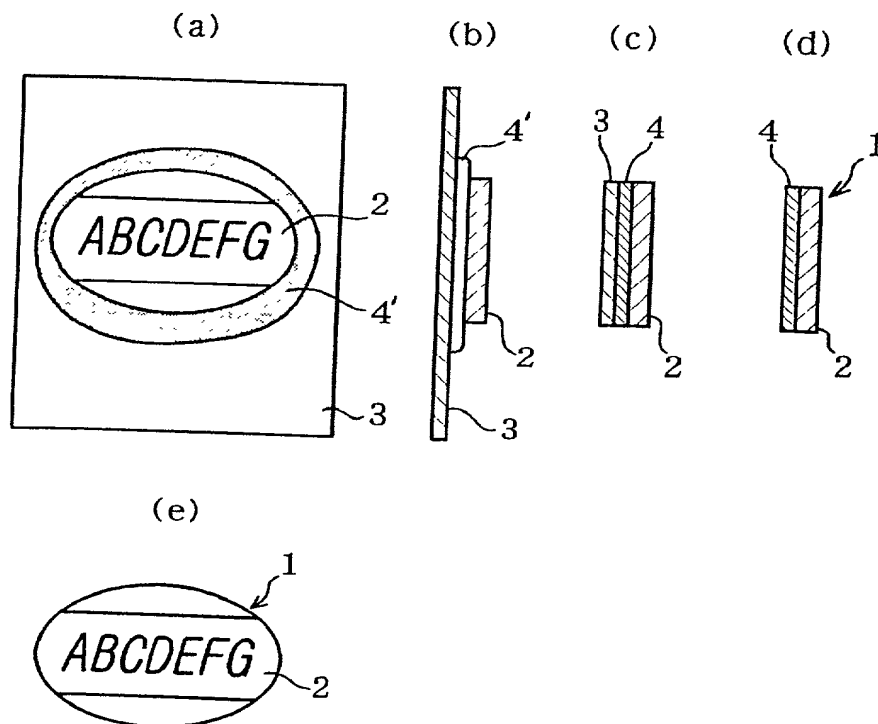


FIG. 2

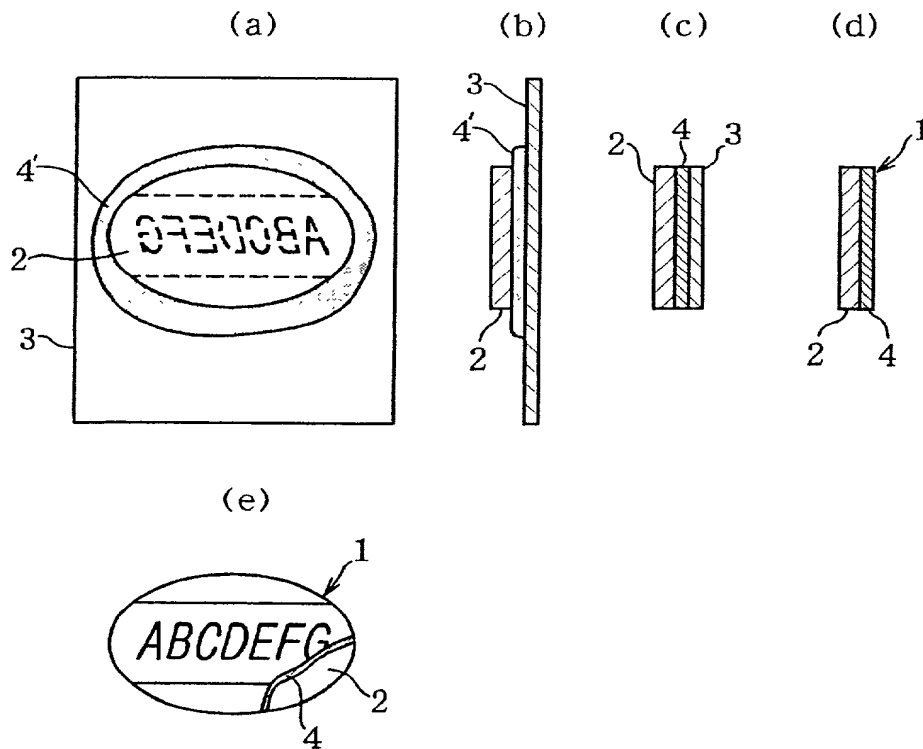
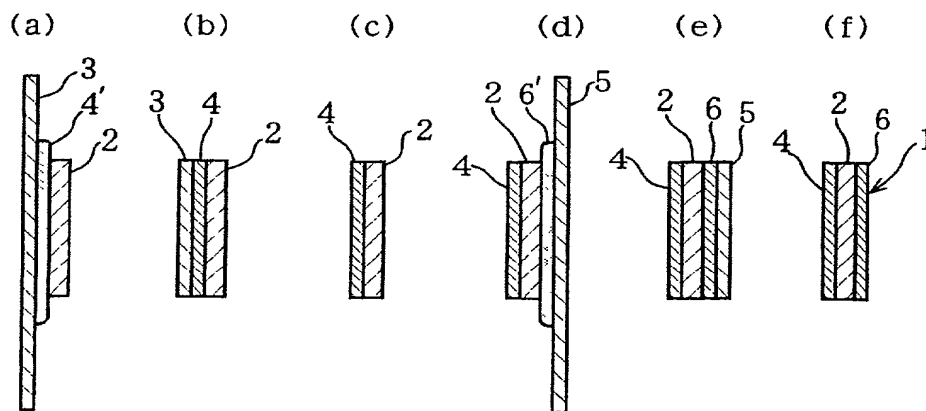


FIG. 3



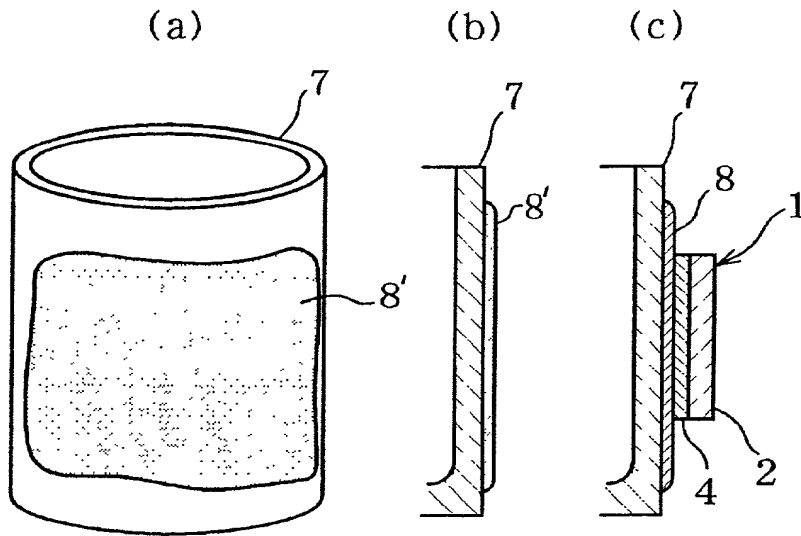
**FIG. 4**

FIG. 5

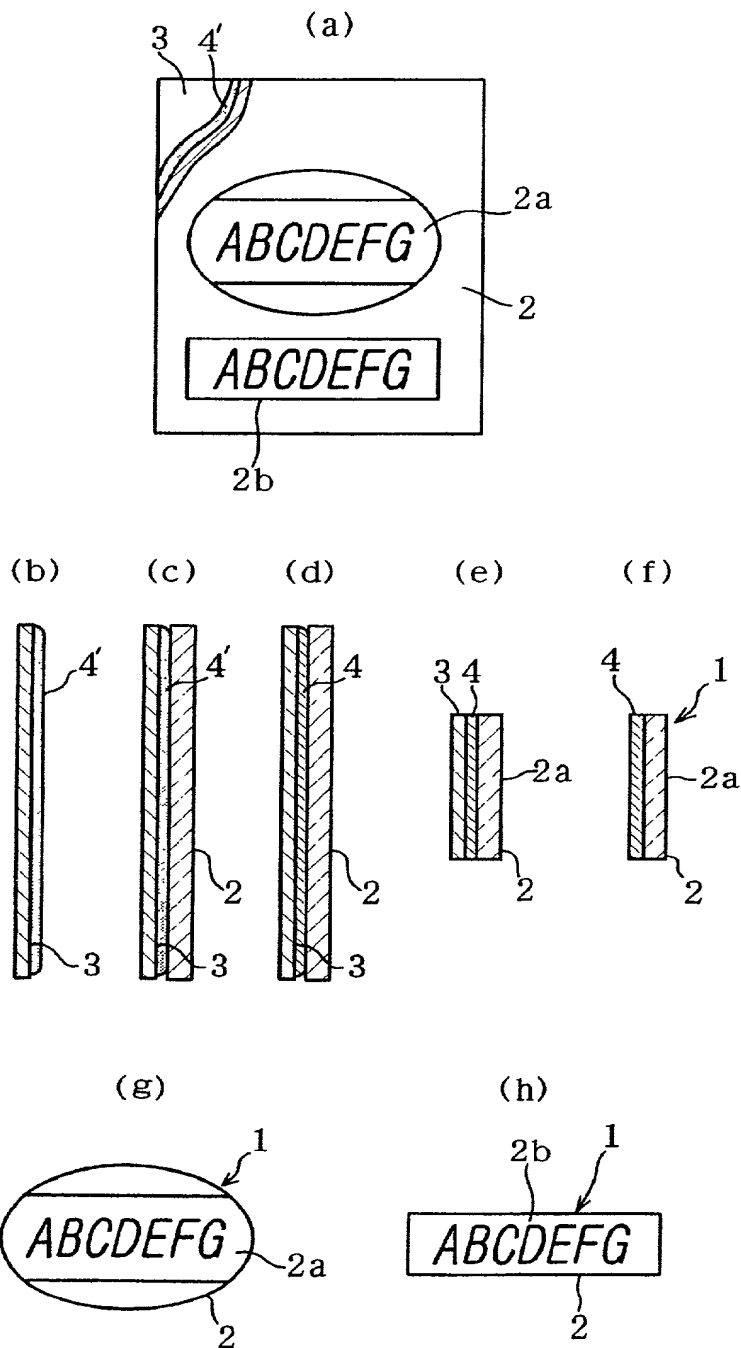
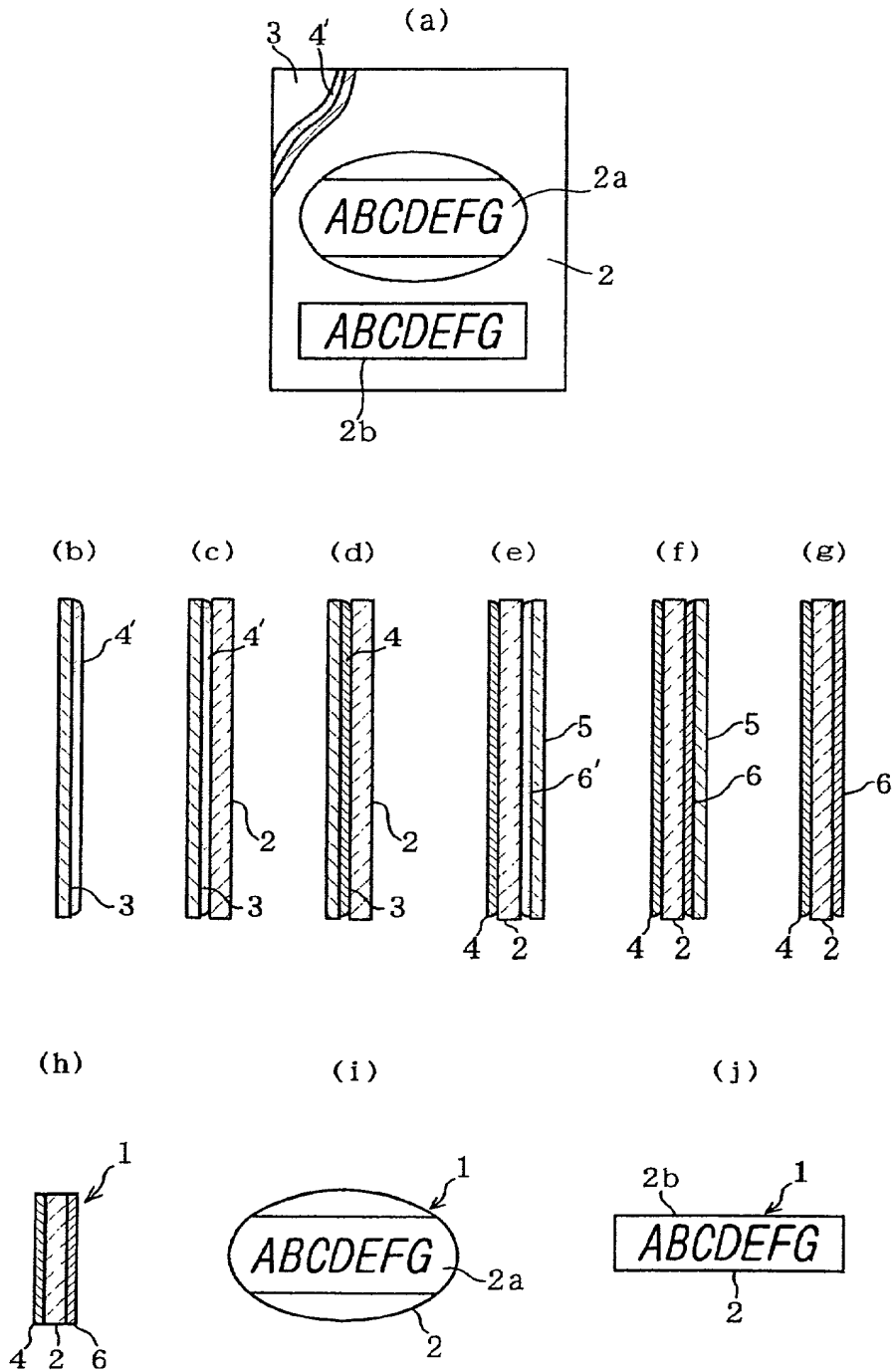


FIG. 6



## Table of Reference Characters and Matters

- |            |  |
|------------|--|
| 1          | resin-coated sheet                     |
| 2          | sheet base                             |
| 3, 5, 7    | release sheet                          |
| 4, 6       | resinous coating film (dried adhesive) |
| 4', 6', 8' | adhesive                               |



# Declaration and Power of Attorney For Patent Application

## Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled.

"Resin-Coated Sheet And Method For Producing The Same"

the specification of which

☐ is attached hereto.

☒ was filed on September 1, 2000

as United States Application Number or

PCT International Application Number

PCT/JP00/05965 and was amended on

\_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority under Title 35, United States Code, Section 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Priority Claimed

<u>11-287154</u> (Patent Application) (Number)	<u>Japan</u> (Country)	<u>01/09/1999</u> (Day/Month/Year Filed)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<u>11-248085</u> (Patent Application) (Number)	<u>Japan</u> (Country)	<u>01/09/1999</u> (Day/Month/Year Filed)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below.

\_\_\_\_\_  
(Application No.)

\_\_\_\_\_  
(Filing Date)

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of application.

\_\_\_\_\_  
(Status: Patented, Pending, Abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

## POWER OF ATTORNEY

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: (list name and registration number)

30  
Norman F. Oblon, Reg. No. 24,618; Marvin J. Spivak, Reg. No. 24,913; C. Irvin McClelland, Reg. No. 21,124; Gregory J. Maier, Reg. No. 25,599; Arthur I. Neustadt, Reg. No. 24,854; Richard D. Kelly, Reg. No. 27,757; James D. Hamilton, Reg. No. 28,421; Eckhard H. Kuesters, Reg. No. 28,870; Robert T. Pous, Reg. No. 29,099; Charles L. Gholz, Reg. No. 26,395; Vincent J. Sunderdick, Reg. No. 29,004; William E. Beaumont, Reg. No. 30,996; Robert F. Gnuse, Reg. No. 27,295; Jean-Paul Lavallaye, Reg. No. 31,451; Stephen G. Baxter, Reg. No. 32,884; Martin M. Zoltick, Reg. No. 35,745; Robert W. Hahl, Reg. No. 33,893; Richard L. Treanor, Reg. No. 36,379; Steven P. Weihrouch, Reg. No. 32,829; John T. Goolkasian, Reg. No. 26,142; Richard L. Chinn, Reg. No. 34,305; Steven E. Lipman, Reg. No. 30,011; Carl E. Schlier, Reg. No. 34,426; James J. Kulbaski, Reg. No. 34,648; Richard A. Neifeld, Reg. No. 35,299; J. Derek Mason, Reg. No. 35,270; Surinder Sachar, Reg. No. 34,423; Christina M. Gadiano, Reg. No. 37,628; Jeffrey B. McIntyre, Reg. No. 36,867; and Paul E. Rauch, Reg. No. 38,591 with full powers of substitution and revocation.

Send Correspondence to:

OBLON, SPIVAK, McCLELLAND, MAIER & NEUSTADT, P.C.  
FOURTH FLOOR  
1755 JEFFERSON DAVIS HIGHWAY  
ARLINGTON, VIRGINIA 22202 U.S.A.

Direct Telephone Calls to: (name and telephone number)

(703) 41 3-3000

Full name of sole or first joint inventor

WATANABE, Kazue

Inventor's signature

*Kazue Watanabe*

Date

June 29, 2001

Residence

**c/o, Denenchofu Roman Co., Ltd.**  
**2-48-16, Denenchofu, Ota-ku, Tokyo 145-0071 Japan** JPX

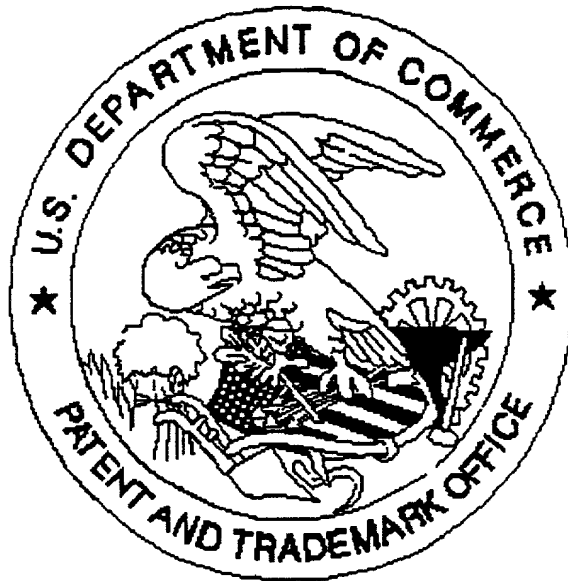
Citizenship

Japan

Post Office Address

**c/o, Denenchofu Roman Co., Ltd.**  
**2-48-16, Denenchofu, Ota-ku, Tokyo 145-0071 Japan**

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